MATERIALS HANDLING IN INDUSTRY

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Review of Report of Specialist Team on Mechanical Aids.

Many of the industrial productivity teams who have visited the U.S.A. have commented on the marked and widespread influence of efficient materials handling. It was for this reason that the Anglo-American Council on Productivity decided to send a specialist team to review this particular aspect of the American economy. Their recently issued report cannot fail to be of deep interest to almost every member of this Institution.

The team comprised a group of industrial executives and Trade Union leaders with a fund of combined experience adequate to ensure the validity of their conclusions. The Institution of Production Engineers was privileged to have the opportunity of nominating two members of the team, Mr. W. J. Dimmock, Assistant Works Manager of Hoover Ltd., and Mr. W. M. Hiorns, Chief Materials Handling Engineer of Humber Ltd. The team was led by Mr. Alfred Roebuck, M.I.Mech.E., Director of Hadfields Ltd.

TERMS OF REFERENCE

The terms of reference given to the team were primarily to report on the underlying reasons for the wide application of better materials handling in the U.S.A., and to examine the general principles evolved.

The report opens with an interesting and stimulating outline of the functions and applications of materials handling. It points out that the problem is common to all industry, and is a major factor of immediate practical importance in determining industrial costs and national standards of living. As the Americans say, tersely but effectively, " The handling of a product adds nothing to its value but increases its cost."

A picture is presented of dynamic top management who fully realise the major practical influence of the subject, and deliberately spend both time and money on the best methods of handling in order to obtain the maximum productivity at the lowest possible cost. Materials handling is being continuously developed and applied on a scale not yet envisaged in this country ; it receives the personal attention of directors, and is strongly fostered in the activities of the various educational and professional bodies. The team was impressed with the degree of enthusiasm for the subject apparent at all levels of American industry.

THE AMERICAN APPROACH The American approach is well expressed—one might almost say epitomised—in the address of welcome given at one Corporation : " To maintain our leadership we have found it imperative to find better methods of handling materials. Our management and labour have united as one hard-hitting team to replace the man-killing pushing, pulling and lifting of materials with mechanisation that means higher wages, better working conditions, increased productivity and lower costs.

" In designing the equipment and systems you saw on your tour, we contacted scores of American vendor and user factories. Our surveys indicated that well-engineered materials handling equipment, properly managed, effects savings from 50 per cent. to a far higher amount, depending on the character of the installation. This equipment usually can be amortized in one to twenty-four months. It is a matter of public record that we spent $385,179 in two years on new standardised portable materials handling systems.

" It is also a matter of record that during this same period, four of our production control departments were able to report :

Dollar savings equal to the cost of the equipment.

48 per cent. reduction in indirect operating costs.

75 per cent. increase in shipping tonnage of material handled.

36 per cent. reduction in equipment maintenance costs.

51 per cent. improvement in accident lost time.

75 per cent. reduction in scrap.

A considerable improvement in working conditions.

" This same equipment which effected savings in the production control departments was simultaneously effecting savings in other departments and divisions.

" Considering the Corporation as a whole, a 10 per cent. increase in production was realised by our new system.

" Every company must develop its own ways and means of improving productivity. We know you will find ways and means that are adaptable to your own particular problems just as we have gradually found solutions to our problems. Doubtless you already have many solutions that would be of immense interest to us if we could just reverse the process and visit your plants."

Something of the vitality and enthusiasm of our American friends shines through these words.

MAIN CONCLUSIONS Following on these general outlines, the report states the team's main conclusions ; amongst the points brought out are :—

(*a*) The outstanding results obtained in the U.S.A. are due, *not* to the existence of any mechanical device or equipment not available to British industry, but rather to a more extensive

and intensive application of known methods and equipment, spurred on by the active personal interest and direction of all grades of management.

(*b*) At all levels of industry a conviction is held that materials handling provides the biggest single opportunity for increasing productivity. This outlook is strongly fostered by educational, professional, trade and press associations, and by the realistic selling techniques adopted by the manufacturers of materials handling equipment.

(*c*) Amongst the contributory factors are the greater differential between the cost of mechanised and manual methods ; the greater purchasing power of wages ; and lower industrial taxation.

It is stressed also that the subject cannot be regarded as an exact science, and requires an organised approach by specialists, integrated by good management with the activities of the remainder of the industrial team.

SOME RECOMMENDATIONS The next section of the report lists the team's recommendations. It would be difficult to exaggerate the potential achievements that could accrue from the application of these recommendations in British industry. One could wish to see this chapter carefully reviewed by the directorates and production executives of every manufacturing organisation in the country. Small inefficiencies in the " indirect " activities of a factory have an insidious habit of accumulating into big inefficiencies, and surprising faults can be unearthed in apparently efficient factories by a careful analysis along the lines recommended in this section of the report.

One recommendation which will be of particular interest to this Institution suggests that liaison with the Handling Division of the American Society of Mechanical Engineers should be established by the interested professional bodies of this country.

Our members may feel that this Institution should take the lead in implementing such action. A start might well be made by inviting one of our friends from the U.S.A. to address a series of Section meetings in this country.

The report goes on to outline the technical aspects of the methods and equipment seen in use during the tour. Without attempting to summarise the wide range of applications surveyed, it may be of interest to pick out one or two of the highlights. One of the most significant trends is the widespread application of the fork lift truck, both with and without pallets, for transporting both incoming and outgoing materials in large unit loads. This practice leads to the inspection of purchased materials at the supplier's works before palletising for despatch. Incoming supplies are then off-loaded by

fork truck direct to the first operation on the factory floor. This kind of technique is being applied on an ever-increasing scale, not only to the large mass-production organisation, but also to the small jobbing shop.

Amongst other interesting items of equipment described is an automatic palletising unit, which collects cartons or packages from a delivery conveyor and stacks on pallets to a pre-arranged pattern, ready for loading into transport vehicles.

INTERESTING TRENDS Further trends commented on are the extensive use of compressed air-operated devices, and the more widespread application of portable power tools. Examples of savings achieved are quoted, and an average saving of 50 per cent. appears to be common. It is stressed that almost without exception similar equipment is already available here, and that all we have to do is to capitalise on the opportunity to apply these existing facilities on a wider and more general scale.

Subsequent sections of the report deal briefly with labour relations, the effect of materials handling on productivity and costs, and the calculation of savings.

The general attitude of organised labour to the ever-widening application of materials handling equipment, is well expressed in the words of a leading trade union official : " The main effect of such new methods should be a reduction in the price to the consumer, thus creating an increasing demand, and consequently the opportunity of additional work which would absorb any labour that might be displaced by such introduction. After that, the workers and the managements should each have an interest in savings effected."

There appears to be no standardised method of calculating savings, and the normal factory costing system is, in fact, usually inadequate for this purpose. It is frequently found that the installation of improved equipment brings in its train a series of detailed improvements and advantages, which in total may well exceed the value of the calculated direct savings. Here is a chance for the production engineer to take the lead in developing a way of evaluating the total savings attainable through improved handling.

THE COMMON PROBLEM The point is made that whilst the U.S.A. and this Country each have a common problem of simultaneously reducing costs and increasing productivity, our American colleagues have been quicker to see and to seize the opportunity presented by materials handling and to do something positive about it. Admittedly the problem is technically complex and varied, and is being tackled in many different ways ; indeed, the technique of better materials handling is still in its infancy, even in the U.S.A.

It is claimed that better handling is capable of saving at least 2,000,000,000 dollars per annum in American industry. It is emphasised strongly that better materials handling provides an exceptional and generally unrealised opportunity for obtaining greater output from existing production equipment, for a comparatively small capital investment. The flow chart technique described in the report provides a very useful practical tool with which to start operations.

This section of the report concludes with some brief but pertinent comments on the practice and influence of good management which, it is inferred, is basically the master key to the whole problem.

The team conclude with acknowledgments of the trouble taken by our American friends to ensure the maximum possible value to this country of their visit. Reading these remarks it is pleasantly evident that sincere and wholehearted co-operation was given without stint, and it is hoped that British industry will take full advantage of the opportunities thus drawn to its attention.

Whilst it has been rightly claimed that the *best* practice in this country is comparable to that in America, few production engineers would disagree with the more significant point that our *average* compares less favourably. The subject is not sensational, and there is certainly nothing spectacular about the report, which provides an objective and factual study along lines that should appeal to the sound and cautious judgment on which we as a nation pride ourselves, and in its typically British restraint should be acceptable to all grades of industry.

THE PRODUCTION ENGINEER'S PART Materials Handling is very much at the heart of the production engineer's job, and whilst the influence of directors and management has been stressed, it is to the production engineer that we must look first as the right man to initiate further interest and action.

Better materials handling is more a matter of the right outlook than of technology—it is very largely the result of an attitude of mind. If this report is regarded, not as an end, but as a beginning, then far-reaching results can follow on its publication.

" MATERIALS HANDLING IN INDUSTRY "
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